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## PLAUSIBLE EVOLUTIONS OF THE COMMERCIAL AGRICULTURAL HOLDINGS IN ROMANIA

### ABSTRACT

The modernization of the Romanian agriculture cannot take place in the absence of a proper consolidation of the commercial agricultural holdings with legal status depending on the zonal particularities and in accordance with the technical and financial means available at a given moment. The General Agricultural Censuses from 2002 and 2010 outlined a certain evolution of the commercial farm size that makes it possible for us to project different scenarios on the future evolution of the commercial farms with legal status on the medium and long term.

Thus, the existence of a large diversity of holdings that no longer strictly fit into a regular, desirable and legally defined typology is gradually taking shape; this reflects the increasingly obvious correlation between the utilized area, the technical endowment, the financial opportunities of the production cycles and the intensification of the domestic agri-food market activity as well as the connection to the external economic circuit. There are quite significant differences at national level by macro-regions, relief units, production profile and economic development level.

**Key words:** agricultural holding with legal status, utilized agricultural area, average farm size, farm structure.

**JEL Classification:** Q 15, Q 24.

### 1. INTRODUCTION

The development of a modern agriculture, with high yields and efficiency, in line with the EU developed countries, requires the promotion of a domestic agricultural policy in agreement with the Common Agricultural Policy, which should also gradually narrow the current gap between Romania and the EU countries with above average development level.

The backbone of commercial agriculture is represented by the agricultural holdings with legal status, which represent the core of the farming business in Romania's agriculture. The wide and convoluted process of transition lasted two decades and half, and finally ended, to be gradually replaced at present by the slow yet obvious and irreversible process of consolidation of the economic structures that are characteristic to the market economy based on private property and free movement of goods, under high competitiveness conditions. In this context,

Romania's agriculture has benefited from developmental respite by taking exploratory steps into the structures of viable agricultural holdings, some of them even highly performant, comparable to the Community average.

In terms of information, we benefit from statistical data, in absolute or average values, which can direct us to false premises in the analysis and projection of certain development directions of the commercial agricultural holdings. We take into consideration the fact that the agricultural holdings with legal status consists of a plurality of holding types. Thus, in agreement with the General Agricultural Census of 2010, we can identify the following: autonomous regies; agricultural associations; majority state-owned or majority private-owned commercial companies; institutes, agricultural research units and school units; local councils-town halls; other public institutions; cooperative units and other types (foundations, religious settlements, other types of schools, etc.). This wide range of agricultural holdings with legal status conceals the real size (either total or average) of commercial agricultural holdings consisting only of a part of the above-listed holdings, as the difference represented about 36% of the area of the agricultural holdings with legal status in 2010. This fact erroneously increases by one-third the utilized agricultural area of the commercial agricultural holdings. At the same time, the share of the agricultural areas utilized by these decreased from 44% to 28% at national level, which fundamentally has changed the importance of the commercial agricultural holdings, which use 16% of the country's utilized agricultural area for non-commercial purposes without direct effects upon the business community in the Romanian agriculture.

In another train of thoughts, it has been decided (on legal basis), to evaluate the economic farm size by calculating the SGM (standard gross margin) and ESU (European Size Unit) per unit of area and per animal head. It is quite a laborious calculation with different values each year, following the same methodology, but also with frequent procedural changes that are generated by new requirements, commonly set by NRDP 2007–2013 financing. Out of this reason, the most elementary assessment of a holding potential is determined by the farm size expressed in area, by agricultural use categories, with average soil rating scores by each agricultural use in part. In this context, we provide a unit base for assessing both the physical size and the economic size of a holding.

As there are severe shortages regarding the implementation of the Romanian general cadastre and land registration system, as well as a faulty update system of the agrochemical and pedological mapping by each agricultural usage within homogenous ecological territories (HET), the HET average soil rating scores can be transferred to each registered cadastral body (and subsequently aggregated for the ownership titles) by agricultural usages, within the Zonal Urbanistic Plan (ZUP) and General Urbanistic Plan (GUP) for each locality, separated in incorporated and unincorporated areas. The presentation of a holding could have been briefly made by several key words: total areas, out of which agricultural areas, by agricultural land use categories, with average values of soil rating scores by each land use category, and pertaining to the incorporated or unincorporated areas of the respective village, by each locality in part.

Thus, the starting point would be a minimal unitary base for the assessment of agricultural holdings, as it is known that the available land area with the related agro-chemical and pedological potential by agricultural usages allows for an optimal crop structure by each holding, thus creating a rational balance between the agricultural usages and the optimum animal number, depending on the availabilities of land resources for animal feeding on the holding.

Obviously, the extremely high mobility and diversity of the typological variants of agricultural holdings, by agricultural activity type, crop specializations, animal production and mixed crop-animal productions, also influenced by the geographical and agro-climatic characteristics, by agricultural production zones, by natural favourability, as well as by the background of the business community where the holding is included, make us look cautiously at the amplification of the calculation methodologies through the multiplication of the processed indicators and intricacy of the computing models.

Out of previously mentioned reasons, we would like to promote a study on the commercial agricultural holdings only in terms of average total agricultural area and utilized agricultural area by holding, on the basis of information collected from the two General Agricultural Censuses from Romania, namely 2002 and 2010.

## 2. STATE OF KNOWLEDGE

The average size of land properties and agricultural holdings has always been a topic of heated arguments and desired objectives of numerous institutions and organizations based on methodologies and mechanisms regulated by laws or by general/private regulatory measures. The fundamental element of the analysis is the size of land area into ownership, based on one or several ownership titles by different usages, different cadastral categories, within or outside the incorporated areas of localities and dispersed into one or several parcels. Concretely, by a unitary manner, aggregated by each land property, by each owner, each territorial administrative unit, each county in part, by regions of economic and social development at nationwide centralized level, we do not certainly know whether there is an accurate and constantly updated statistical database.

There are a few dissociated data flows that stock information at various levels:

- physical and legal entities who own land with or without ownership titles, with unregistered, partially registered or fully registered land;
- records from the agricultural registries of each territorial administrative unit;
- parallel records from statistical offices, agricultural offices, local or county public finance, the Agency for Payments and Interventions in Agriculture, etc.;
- records kept by the cadastral and land registration offices, the technical and juridical office of cadastral evidence of the land patrimony;
- accounting and patrimony records of the units with legal status;

- records of other ministerial, scientific and organizational institutions, departments;
- specialized cadastral works;
- military topography works;
- various electronic databases such as Eurostat, Faostat, TEMPO-online, etc.

Within such a wide range of records, it is most likely to appear great differences or data that cannot be comparable out of methodological, operational or scope reasons. From this point of view, it was agreed on merely using the data from the General Agricultural Censuses from Romania conducted in 2002 and 2010, studies that fully cover, in an exhaustive manner, the entire issue of the agricultural holdings and also provide minimum information on their number and size, even though, in terms of methodology, certain slight methodological changes have been actually produced, in the sense of improvements on the 2010 Census.

It is a surprising fact that, although these two monumental statistical studies (leaving aside their shortages) were published on-line, printed on paper and on magnetic support, they have been little processed; consequently, remarks on their outdated or even unreliable character have been often made, and other better information sources available were mentioned.

This is an absolutely wrong assumption. The scientific researchers in the first place, then other ministerial, administrative and operational structures ought to fully exploit the information deriving from the analysis of various aspects by aggregation levels (territorial administrative unit, county, development region, macroregion and country) in dynamics, in the time period 2002–2010, with the possibility of making predictions on the future evolution of certain phenomena of national or particular interest, based on real data.

From this point of view, the present study is an attempt to develop an analysis model for shaping the evolution of commercial farm size, specific to our country.

### **3. MATERIAL AND METHOD**

For the purpose of this study, we exclusively used the data provided by the results from the General Agricultural Censuses of Romania, conducted by the National Institute of Statistics in 2002 and 2010, published in the period 2004–2012. Only a few types of agricultural holdings with legal status were investigated, as representative commercial farms at national level, also differentiated by development regions. We also used a limited number of indicators, such as: number of holdings, total agricultural area, utilized agricultural area, and the index used was the average area of agricultural holding or the ratio between the two censuses situations, analyzed in dynamics.

The information made it possible to enlarge the study by size categories of holdings, sketching different evolution rates between censuses and in the future.

Although there is complete information nationwide, coming from each territorial administrative unit, aggregated at county, regional, macro regional and national level, the study makes a comparative analysis of the evolutions only at regional and national level. A more complete study is going to be the subject of a subsequent and larger work that will attempt to identify the possible increasing potential of the average size of commercial agricultural holdings by counties.

To make a study at village or commune level is quite an impossible task, as a large commercial agricultural holding has both owned and attracted land areas (leased in land, land under concession system, etc.), which may be located in two or several communes, sometimes in neighbouring counties.

Therefore, the study has also a relative character, merely determined by the use of available data, identifying improvement possibilities of the methodology used for the next General Agricultural Census, an aspect that will be communicated to the institutions in charge. The study will also highlight these aspects.

#### 4. RESULTS AND DISCUSSIONS

This research paper aims to identify the average size of the commercial agricultural holdings, which is different from the average size of the agricultural holdings with legal status, in order to estimate, on one hand, the total agricultural area and the utilized agricultural area that is used in reality by the agricultural business community, with specificities by development regions; and on the other hand, to measure more accurately the change in the evolution trends of the average size of the commercial agricultural holding, in order to estimate plausible scenarios for future evolutions.

Since in terms of methodology there are some differences between the two censuses, we preferred to group the agricultural holdings with legal status in the year 2010, according to their juridical status, by groups of holdings, as they were previously enumerated in the 2002 Census. Thus, the commercial companies include the total of the two types, namely majority state-owned and majority private-owned; other types of agricultural holdings include (besides those already existing in the General Agricultural Census of 2010) institutions with legal status such as monasteries, churches, cloisters, non-agricultural schools or other non-governmental organizations (foundations, non-profit associations, etc.) only if they carry out agricultural activities (GAC, 2010). To these, autonomous regies, institutes, research stations and school units (high-schools) were added, while in the category local councils/ town halls other public institutions were also included.

In terms of the number of agricultural holdings with legal status, we can notice an increase by 35% in 2010 as compared to 2002, the agricultural associations experienced an obvious decline by 39%, the cooperative units were down by 21.8%, while the number of commercial companies increased almost three times, from 6,138

to 16,500, and other types increased by 13.9%. An interesting trend was noticed in the case of the public administration units, whose number dropped by 44.9% (Table 1).

*Table 1*

Number of agricultural holdings with legal status that utilize agricultural areas and have animals

Item	Total, out of which:		Holding profile					
			Mixed		Crop production		Animal production	
	2002	2010	2002	2010	2002	2010	2002	2010
<i>Total, out of which:</i>	22,672	30,698	3,596	2,526	18,450	27,702	626	445
Agricultural associations	2,261	1,381	333	138	1,891	1,232	37	11
Commercial companies	6,138	16,500	1,416	1,436	4,290	14,649	432	390
Public administration units	5,698	3,083	944	163	4,674	2,915	80	5
Cooperative units	87	68	7	4	70	63	10	1
Other types	8,488	9,666	896	785	7,525	8,843	67	38

*Source:* own calculations based on data from the General Agricultural Censuses of 2002 and 2010 (Brumă and Bohateret, 2015)

Taking into consideration the holding profile, we can notice a decreasing trend of the number of farms with mixed and livestock profile and an increase in the number of crop farms. Overall, there are two main trends: an explosive growth, by three times, of the number of crop farms operated by commercial companies, while the number of mixed and livestock farms remained relatively constant; a decline by about 38% of the crop farms operated by the public administration units, while the number of mixed and livestock farms decreased dramatically, 13 times (Table 1).

Thus, one can notice the trend of the public administration to give up their direct involvement in economic activities (animal husbandry and even crop production) by various legal forms of agricultural land use transfer such as leasing out, concession, renting, etc.).

The phenomenon is better highlighted when we investigate the evolution of the utilized agricultural area, down by about 44% in the year 2010 in the case of agricultural associations, and also in the case of public administration units, while the utilized agricultural area of the commercial companies increased by 46.3% (Table 2).

The increase in number of holdings and the decrease of the utilized agricultural area resulted in the diminution of the average agricultural area per total holdings with legal status from 274 ha to 191 ha, with differentiations by types of holdings, namely a drop from 431 ha to 399 ha in the case of agricultural associations, from 353 ha to 245 ha in the case of commercial companies and an increase from 503 ha to 668 ha for the local public administration units (Table 2).

*Table 2*  
Agricultural holdings with legal status, utilized agricultural area and  
utilized agricultural area per holding

Item	Total agricultural holdings (no.)		Agricultural holdings that used agricultural area (no.)		Utilized agricultural area (thousand ha)		Average utilized agricultural area per holding (ha)	
	2002	2010	2002	2010	2002	2010	2002	2010
<i>Total, out of which:</i>	22,672	30,698	22,046	30,228	6,222.0	5,856.5	274.43	190.78
Agricultural associations	2,261	1,381	2,224	1,370	975.6	550.9	431.47	398.90
Commercial companies	6,138	16,500	5,706	16,085	2,168.8	3,171.1	353.34	244.51
Public administration units	5,698	3,083	5,618	3,078	2,867.4	1,604.5	503.22	667.66
Cooperative units	87	68	77	67	2.4	8.2	27.19	120.24
Other types	8,488	9,666	8,421	9,628	207.9	521.8	24.49	53.98

*Source:* own calculations based on data from the General Agricultural Censuses of 2002 and 2010 (Brumă and Bohateret, 2015)

These findings reveal that the overall assessment of the state of the agricultural holdings with legal status in terms of number, total agricultural area and average utilized agricultural area per holding is not relevant; furthermore, it blocks us into unreal results.

Thus, this explains why in the first part of the study there were only two units that stood out among the agricultural holdings with legal status, namely the commercial companies (CC) and the associative units (AU) consisting of agricultural associations and cooperative units that together form the category of agricultural holdings with commercial legal status (AHWCLS), the very entity that is of highest interest for the agricultural business community. The study was made taking into consideration the total agricultural areas and the utilized agricultural areas (Table 3 and Table 4).

The analysis by groups of farm size classes, shows that if using the minimum number of groups (on the basis of censuses with relevant reliable results), i.e. the holdings with less than 100 ha and the holdings with more than 100 ha, the share of agricultural holdings with legal status with average utilized agricultural area under 100 ha increased from 63.9% in 2002 to 67.2% in 2010, while the total area owned by them represented 2.4% in 2002 and 3.8% in 2010, and consequently the area difference of over 96% could not be delimited by groups of size categories.

Even so, it can be noticed that in the case of the agricultural holdings with commercial legal status, the total average agricultural area per farm decreased from 382 ha in 2002 to 217 ha in 2010, while the farms over 100 ha had a slightly smaller decline, from 664 ha to 598 ha; in this context, overall, the average size of the agricultural holdings with legal status was down from 866 ha to 709 ha, data that could easily puzzle any unauthorized reader. The phenomenon is similar in the case of utilized agricultural areas.

Table 3

The evolution of the agricultural holdings with legal status by size category groups of the total land area, per total country (2002–2010)

Indicator	GAC 2002			GAC 2010			2010/2002 (%)		
	number	thousand ha	average (ha)	number	thousand ha	average (ha)	number	area	average
Total AH	4,484,893	15,708.0	3.50	3,845,245	15,695.0	4.08	85.7	99.9	116.5
AHWLS	4,462,221	8,454.4	1.89	3,814,644	8,307.5	2.18	85.5	98.3	114.9
AHLS	<b>22,672</b>	<b>7,253.5</b>	<b>319.93</b>	<b>30,601</b>	<b>7,387.6</b>	<b>241.42</b>	<b>135.0</b>	<b>101.8</b>	<b>75.5</b>
Under 100 ha	14,494	174.5	12.04	20,579	283.7	13.79	142.0	162.5	114.5
Over 100 ha	8,178	7,079.0	865.61	10,022	7,103.9	708.83	122.5	100.4	81.9
CC	<b>6,138</b>	<b>2,249.8</b>	<b>366.54</b>	<b>16,415</b>	<b>3,297.8</b>	<b>200.90</b>	<b>267.4</b>	<b>146.6</b>	<b>54.8</b>
Under 100 ha	3,062	63.0	20.58	11,206	153.4	13.69	366.0	243.5	66.5
Over 100 ha	3,076	2,186.8	710.93	5,209	3,144.4	603.64	169.3	143.8	84.9
AU	<b>2,348</b>	<b>994.3</b>	<b>423.46</b>	<b>1,444</b>	<b>582.4</b>	<b>403.33</b>	<b>61.5</b>	<b>58.6</b>	<b>95.2</b>
Under 100 ha	663	21.3	32.10	446	15.6	35.06	67.3	73.5	109.2
Over 100 ha	1,685	973.0	577.44	998	566.8	567.91	59.2	58.3	98.3
AHCLS	<b>8,486</b>	<b>3,244.1</b>	<b>382.29</b>	<b>17,859</b>	<b>3,880.2</b>	<b>217.27</b>	<b>210.5</b>	<b>119.6</b>	<b>56.8</b>
Under 100 ha	3,725	84.3	22.63	11,652	169.1	14.51	312.8	200.6	64.1
Over 100 ha	4,761	3,159.8	663.68	6,207	3,711.1	597.89	130.4	117.4	90.1
% AHCLS/AH	<b>0.2</b>	<b>20.7</b>		<b>0.5</b>	<b>24.7</b>				
%AHCLS/AHLS	<b>37.4</b>	<b>44.7</b>		<b>58.4</b>	<b>52.5</b>				
% AHLS/AH		<b>46.18</b>			<b>47.07</b>				

Notes: AH – agricultural holdings; AHWLS – agricultural holdings without legal status; AHLS – agricultural holdings with legal status; CC – majority state-owned and majority private-owned commercial companies. AU associative units – agricultural companies/associations and cooperative units; AHCLS = CC+AU, where AHCLS is a holding with legal status and commercial profile.

Table 4

Evolution of the agricultural holdings with legal status by size category groups of the utilized agricultural area in the country (2002–2010)

Indicator	GAC 2002			GAC 2010			2010/2002 (%)		
	number	thousand ha	average (ha)	number	thousand ha	average (ha)	number	area	average
Total AH	4,299,361	13,930.7	3.24	3,724,332	13,306.1	3.57	86.6	95.5	110.3
AHWLS	4,277,315	7,708.8	1.80	3,694,104	7,449.6	2.02	86.4	96.6	111.9
AHLS	<b>22,046</b>	<b>6,222.0</b>	<b>282.23</b>	<b>30,228</b>	<b>5,856.5</b>	<b>193.74</b>	<b>137.1</b>	<b>94.1</b>	<b>68.6</b>
Under 100 ha	14072	156.7	11.14	20,774	274.2	13.20	147.6	175.0	118.6
Over 100 ha	7,974	6,065.3	760.63	9,454	5,582.3	590.47	118.6	92.0	77.6
CC	<b>5,706</b>	<b>2,168.8</b>	<b>380.09</b>	<b>16,085</b>	<b>3,171.1</b>	<b>197.15</b>	<b>281.9</b>	<b>146.2</b>	<b>51.9</b>
Under 100 ha	2,692	60.1	22.34	11,002	147.2	13.38	408.7	244.7	59.9
Over 100 ha	3,014	2,108.6	699.62	5,083	3,024.0	594.92	168.6	143.4	85.0
AU	<b>2,301</b>	<b>977.9</b>	<b>425.00</b>	<b>1,437</b>	<b>559.1</b>	<b>389.04</b>	<b>62.5</b>	<b>57.2</b>	<b>91.5</b>
Under 100 ha	628	21.4	34.03	450	15.9	35.35	71.7	74.4	103.9
Over 100 ha	1,673	956.6	571.76	987	543.1	550.30	59.0	56.8	96.2
AHCLS	<b>8,007</b>	<b>3,146.7</b>	<b>393.00</b>	<b>17,522</b>	<b>3,730.2</b>	<b>212.89</b>	<b>218.8</b>	<b>118.5</b>	<b>54.2</b>
Under 100 ha	3,320	81.5	24.55	11,452	163.1	14.24	344.9	200.0	58.0
Over 100 ha	4,687	3,065.2	653.98	6,070	3,567.1	587.66	129.5	116.4	89.9
% AHCLS/AH	<b>0.19</b>	<b>22.59</b>		<b>0.47</b>	<b>28.03</b>				
%AHCLS/AHLS	<b>36.32</b>	<b>50.57</b>		<b>57.97</b>	<b>63.69</b>				
%AHLS/AH		<b>44.66</b>			<b>44.01</b>				

Notes: see Table 3

Thus the following conclusions can be drawn:

- although the share of the total agricultural area of the agricultural holdings with legal status remained relatively stable in 2002–2010, accounting for 46–47% of the total utilized agricultural area nationwide, the agricultural holdings with commercial legal status have only 20.7% up to 24.7% of the total national land resources;

- the share of the area owned by commercial agricultural holdings increased from 44.7% to 52.5% of the total agricultural area of the agricultural holdings with legal status;

- although at a first glance, one can consider that in 2010, for instance, 47% of the country's agricultural area was utilized by the agricultural holdings from the business community, these actually operated only 24.7% of the total agricultural area of the country;

- although in number, the AHCLS increased in the period 2002–2010 to 210.5%, and to 119.6% in area, in terms of average area they decreased to 56.8%;

- for the size categories of total and utilized agricultural areas over 100 ha, in the case of agricultural holdings with legal status, it is necessary to subdivide them into smaller sized groups, which could reveal the distribution of these holdings by different medium-size groups. The following intervals are suggested: 100–300 ha; 300–500 ha; 500–700 ha; 700–1,000 ha; 1,000–1,500 ha; 1,500–2,000 ha; 2,000–3,500 ha; 3,500–5,000 ha; 5,000–7,500 ha; 7,500–10,000 ha; 10,000–15,000 ha; 15,000–20,000 ha; 20,000–30,000 ha; 30,000–50,000 ha and over 50,000 ha;

- the agricultural holdings with commercial legal status use about one quarter of the total agricultural area, with slight increasing trends.

In number, the dispersion level of agricultural holdings with legal status has differently evolved in time, in accordance with the juridical organization form, with significant differentiations across development regions (Fig. 1).

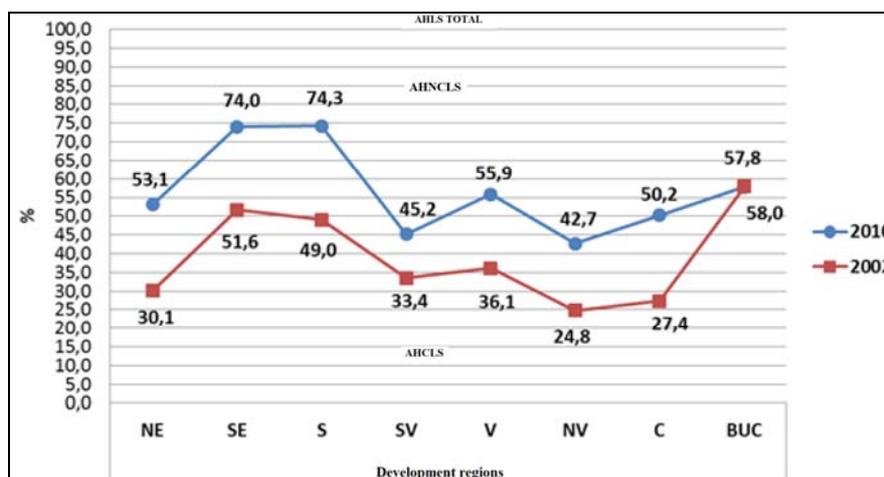


Figure 1. Evolution of the number of agricultural holdings with legal status, by holding types in the period 2002–2010 (%).

In the year 2002, the share of commercial holdings represented more than 50% of total number of agricultural holdings with legal status only in Bucharest–Ilfov and South–East regions, while in the year 2010 six regions exceeded this limit (South – 74.3%, South–East – 74.0%, Bucharest–Ilfov – 57.8%, West – 55.9%, North–West – 53.1% and Center – 50.2%), while the difference was represented by the agricultural holdings with non-commercial legal status. As a general trend, we can notice the diminution of their share at the expense of the commercial holdings.

Significant changes are also found in the case of the evolution of utilized agricultural areas by types of holdings. In the period 2002–2010, we can notice an increase of the share of commercial holdings in the total number of agricultural holdings, in all the development regions, except for Bucharest–Ilfov. Overall, the total agricultural holdings with legal status had an increasing trend in the following regions: North–East, South–East, South and West, while a decreasing trend was noticed in the remaining regions. The differences are more noticeable if we analyze their evolution across regions, in correlation with the agricultural holdings without legal status. Again, two clear trends can be noticed: the commercial agriculture on holdings with legal status is mostly practiced in the South–East and South regions, with increasing trends over 40%, while the non-commercial agricultural holdings with legal status have the highest share (over 35–40%) of utilized agricultural areas in the regions North–West, Center and West.

This aspect reveals the public land property conservation trend, which is more developed in the regions North–West, Center and West, as an effect of the non-application of the Agrarian Reform from 1864 in Transylvania, which was part of the Austrian–Hungarian Empire at that time.

On the other hand, the agricultural holdings without legal status, although following a decreasing trend in the share of utilized areas, have maintained the highest share in the regions North–East, South–West, North–West and Center, i.e. about 60–65% of total utilized area, while in 2010 the regions with the smallest utilized area were Bucharest–Ilfov (36%), West (45%), South–East and South (46%). (Fig. 2)

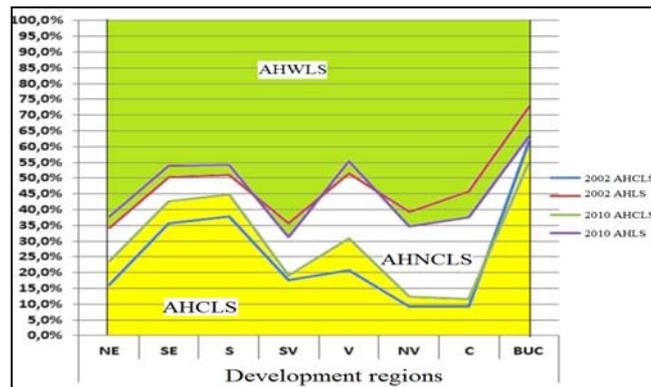


Figure 2. The evolution of the share of utilized agricultural areas, by types of holdings, in the period 2002–2010.

It can be noticed that, overall, the non-commercial agricultural holdings with legal status have a high share in the national agricultural area, down from 4.0 million ha in 2002 to 3.5 million ha in 2010, but still representing 25.5% and 22.3% respectively of the country's total agricultural area, area with a high non-utilization level, on the rise from 23.4% in 2002 to 39.5% in 2010.

Table 5

Evolution of the average utilized agricultural area (AUAA) per agricultural holding with legal status (AHLS) in the period 2002–2010 and of the utilized agricultural area into ownership (UAAO) by development regions in 2010

	Indicator	UM	Total	NE	SE	S	SW	W	NW	C	Piece
2010	AUAA/AHLS	thousand ha	5,856.6	674.9	1,181.7	1,264.0	503.3	957.1	625.8	610.1	39.6
	UAAO/AHCLS	thousand ha	2,350.3	211.7	315.4	230.8	225.4	550.7	380.5	430.8	4.9
	AHLS	no.	30,228	4,486	3,947	5,538	2,635	4,164	5,328	4,381	219
	AUAA/AHCLS	ha	193.74	150.45	299.39	228.24	191.01	229.85	117.45	139.26	183.33
	UAAO/AHCLS	ha	77.75	47.19	79.91	41.67	85.54	132.25	71.42	98.33	22.37
2002	AUAA / AHLS	ha	282.22	193.83	390.60	326.55	268.15	374.32	206.77	248.11	348.87
	AUAA 2010/2002	%	68.65	77.62	76.65	69.89	71.23	61.40	56.80	56.13	52.55

Notes: see Table 3

As regards the evolution of the utilized agricultural area per holding with legal status (Table 5), the following aspects can be noticed:

– the average area of a commercial agricultural holding with legal status varies across development regions, the smallest areas being found in the regions North–West, Center and North–East, up from 117 ha, 139 ha and 150 ha in 2002 to 207 ha, 248 ha and 194 ha respectively in 2010, while the largest areas are found in Bucharest–Ilfov, West and South–East, up from 183 ha, 230 ha and 299 ha in 2002 to 349 ha, 374 ha and 391 ha respectively in 2010 (Fig. 3);

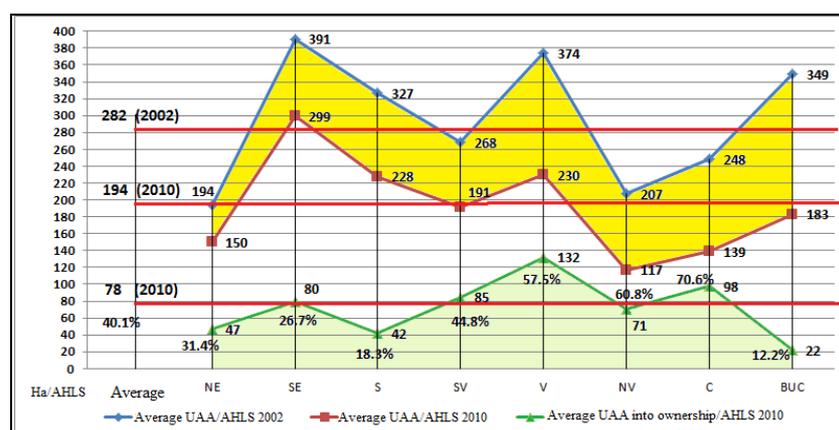


Figure 3. The evolution of the average utilized agricultural area (AUAA) on agricultural holdings with legal status (AHLS) in 2002–2010 and of the utilized agricultural area into ownership (UAAO) by development regions in 2010.

– the agricultural land into ownership of the commercial agricultural holdings with legal status had reached high shares by the year 2010 in the regions West, North–West and Center (57%, 61%, 71%), while the lowest shares were found in the regions Bucharest–Ilfov, South and South–East (12%, 18% and 27%) (Fig. 3);

– the average size of the commercial agricultural holding with legal status is generally lower than the utilized agricultural area by territorial administrative units (TAU) in the regions West, Center and North–West, down from 2,040 ha, 1,642 ha and 1,430 ha in 2002 to 1,504 ha, 1,179 ha and 998 ha respectively in 2010; as compared to the average utilized agricultural area from the commercial holdings, which in the same regions decreased from 420 ha, 181 ha and 196 ha in 2002 to 210 ha, 88 ha and 100 ha respectively in 2010 (Fig. 4).

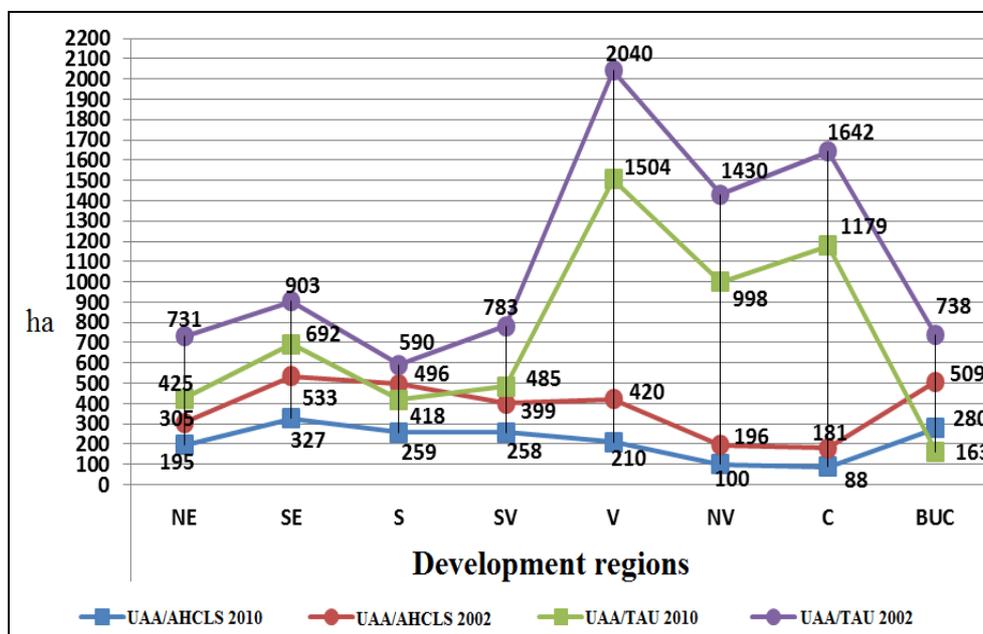


Figure 4. The evolution of the utilized agricultural areas (UAA), on the average (ha/holding, ha/TAU) by commercial holdings with legal status and by territorial administrative units (TAU) in the period 2002–2010.

By analyzing the non-utilized agricultural area (Table 6), it can be noticed that in the case of agricultural holdings without legal status, this increased from 4.7% in 2002 to 5.5% in 2010 in the total agricultural area of the country, while in the case of non-commercial agricultural holdings with legal status it increased from 6.0% in 2002 to 8.8% in 2010, the lower increase being found for the commercial agricultural holdings with legal status, in which the non-utilized land slightly increased from 0.6% in 2002 to 1.0% in 2010.

*Table 6*  
The evolution of the non-utilized agricultural areas by holding type and by non-utilized agricultural land at national level in the period 2002–2010

Indicator	Non-utilized agricultural areas (thousand ha)		Non-utilization degree (%)	
	2002	2010	2002	2010
AH	1,777.3	2,388.9	11.3	15.2
AHWLS	745.6	857.9	8.8	10.3
AHCLS	97.4	150.0	3.0	3.9
AHNCLS	934.1	1,381.1	17.9	39.4

Notes: see Table 3

## 6. CONCLUSIONS

The brief survey on the size of the agricultural holdings with legal status, by groups of holdings, according to the legal status of organization and operation, as enumerated by the General Agricultural Censuses from Romania in 2002 and 2010, makes it possible to formulate the following general conclusions:

- the agricultural holdings with legal status cannot be analyzed on an overall basis, as they are divided into 2 particular sub-groups in relation to their legal organization system, namely commercial holdings with legal status and non-commercial holdings with legal status;
- the commercial holdings use about one quarter of the national agricultural land area, with slight increasing trends and higher shares in the regions South–East and South;
- the non-commercial holdings use about 20% of the national agricultural land area, showing slight declining trends, with higher shares in the regions North–West, Center and West;
- the average utilized agricultural area per commercial holding is different across development regions, ranging from 117 ha in North–West to 299 ha in South–East;
- on the commercial holdings, the agricultural area into ownership has the highest share in the regions Center, North–West and West (71%, 61% and 57% respectively) and the lowest share in the regions South–East, South and Bucharest–Ilfov regions (27%, 18% and 12% respectively);
- the average size of a commercial agricultural holding is lower than the average utilized area on a territorial administrative unit, with different ratios by regions in 2010, ranging from an average size 4.9 times smaller than TAU in the region West, to levels that reach 70–80% out of TAU (territorial administrative unit) size in the regions South and Bucharest–Ilfov;
- the non-utilized agricultural area tends to increase in all categories of non-commercial holdings (from 17.9% in 2002 to 39.4% in 2010) and the lowest shares are found on the commercial holdings (from 3.0% in 2002 to 3.9% in 2010);

– the group of total utilized agricultural area size category over 100 ha, for the agricultural holdings with legal status, on the occasion of the next census, should be subdivided into 8–12 size categories with smaller area intervals, in order to give the possibility to follow the evolution of holdings, in terms of number, total area, utilized agricultural area and average area by legal types of holdings, with differentiations across regions.

Considering the entire scientific approach aimed to reveal the characteristics of the size of agricultural holdings with legal status, in dynamics and across regions, we can outline a few possible future evolutions for them. We have in view the following aspects:

– the continuation of the strong increase in the number of agricultural holdings with legal status at the same time with the decrease of total agricultural area and average utilized agricultural area per holding;

– the total agricultural area of the territorial administrative units will most likely be stabilized at the present level, with slight decreasing trends, but also with a higher decreasing rate for the non-utilized agricultural area;

– the commercial holdings included in small and medium-sized sub-groups, ranging from 100 to 1,500 ha, will get consolidated, will grow in number and their size will slightly increase as well;

– in the next 10–15 years, the large and very large commercial holdings will gradually diminish until they will disappear, turning into commercial holding structures comparable to those in the European Union;

– the non-utilized agricultural area will generally remain at a high level due to the fact that almost 1,500–2,000 thousand ha of agricultural land have quite a low agricultural potential, with soil rating scores under 30 by different agricultural uses;

– there is a possibility to move about 1,500–2,000 thousand hectares into the forestry use category, for the qualitative and quantitative re-balancing of Romania's agricultural land potential;

– the regional gaps between the commercial holdings will grow deeper; they will get more consolidated in Transylvania, where the smaller yet autonomous holdings are preferred as against other historical regions with larger commercial agricultural holdings, but with much smaller areas of land into ownership;

– the increase of the average area in the case of commercial holdings is determined by the funding facilities for production and investments in agriculture, by the adjustment of the agricultural tractor and machinery fleet to the plausible average size of holdings, by holding profiles and by the proper operation of agricultural markets;

– the capacity of the territorial administrative units to efficiently use their own agricultural land resources, with special recovery programs for the utilization of communal pastures and hayfields;

– the average land area increase on the commercial holdings is limited by the constant or slowly evolving ratio that exists between the utilized agricultural areas

owned by holdings without legal status, commercial holdings and territorial administrative units;

– the improvement of the livestock units (LU) number per 100 ha arable land, pastures and hayfields index in herbivores and LU per 100 ha arable land index in monogastric animals in order to foster the transition from farm size assessment to the establishment of the proper economic dimension under equilibrium conditions, through resources, in the crop production – animal production ratio.

Therefore, the study of the results from the 2002 and 2010 General Agricultural Censuses from Romania, conducted by the National Institute of Statistics, together with the proper and sensible use of such a wide range of data and information, makes it possible to formulate a few relevant conclusions, whose scope could amplify depending on the potential users of the research outcome.

The study of the agricultural holding size in Romania, viewed in all its typological diversity, temporal dynamics and spatial distribution, by production profiles and by agro-pedological and climate zones, provides us with an accurate development direction of the Romanian agriculture, in its wide variety of forms and with increasing efficiency and profitability trends, in the crop, horticultural and animal production.

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